

REMARKS

Claims 1-72 are pending in the subject application. Claims 1 and 54 have been amended for clarification purposes. Support for the amendment to claims 1 and 54 is found throughout the Specification, as filed, and no new matter is presented by the amendment.

Favorable reconsideration in light of the amendments and remarks which follow is respectfully requested.

1. 35 U.S.C. §103 Rejections

Claims 1-11, 19-21, 23-24, 26-35, 38, 52-56 and 64-65 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Schmittle et al (4,182,848 and 4,157,421) in view of Kovar et al (5,977,269).

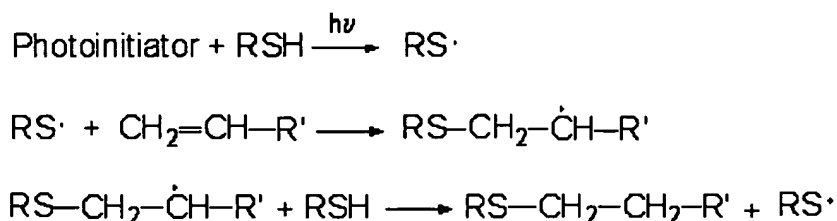
Applicants respectfully traverse. Applicants claim, in independent claim 1 a radiation curable resin composition, containing essentially no volatile organic components, comprising: at least one vinyl dioxolane end-capped oligomer, at least one photoinitiator to initiate radiation cure of the oligomer. Further, the composition is free of thiols.

Applicants claim, in independent claim 54, a radiation curable resin composition, containing essentially no volatile organic components, comprising the reaction product of: (a) at least one polyester prepolymer which comprises the reaction product of (1) at least one substituted vinyl dioxolane monomer having the formula set forth and (2) at least one ester of a polycarboxylic acid or hydroxy-functional acrylate, isocyanate or polyisocyanate or isocyanate-endcapped aliphatic or aromatic urethane prepolymer, and (b) at least one photoinitiator to initiate UV of visible light cure of the composition, wherein the composition is free of thiols.

As previously set forth, the Schmittle references (USP 4,157,421 and 4,182,848) describe photocurable compositions and, in particular, "thiol-ene cures" of polymers. Thiol-ene cure is the cure of polymers by radiation induced addition of thiol functions to carbon-carbon unsaturation. (Col. 1, lines 7-10) Thus, according to the

Schmidle references, the thiol component is necessary and is the component used for the cure.

UV cure is typically achieved by either a thiol-ene cure or by an acrylate cure. In the thiol-ene cure, a thiol functional silicone is reacted with a vinyl functional silicone. In particular, the reaction is a chain reaction that proceeds by a step-growth addition mechanism which is propagated by a chain transfer reaction involving the thiol radical (RS•) as follows:



According to the present invention, on the other hand, a photoinitiator is added to a vinyl dioxolane endcapped oligomer and radiation cure of the oligomer is accomplished by polymerization of the vinyl group, while the dioxolane ring remains intact or by polymerization of the vinyl group, while vinyl dioxolane ring opens.

Thus, while the Schmidle references describe compositions requiring thiols to accomplish a thiol-ene cure, the present invention describes compositions comprising vinyl-dioxolane endcapped oligomers and photoinitiators without the use of thiols. The coatings of the present invention are made from different starting materials and are formed by different curing mechanisms providing benefits not achieved by the cited references.

Further, Kovar '269 does not remedy these deficiencies. Kovar '269 describes thermally curable coating composition. Kovar '269 does not describe or suggest radiation curable coating compositions containing essentially no volatile organic components which comprise a photoinitiator for catalyzing the cure of the coating composition.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP 2142.

As set forth above, the Schmiddle references in combination with Kovar '269 do not describe or suggest all of Applicants' claim limitations. The Schmiddle references describe a very specific composition and curing mechanism wherein thiols are necessary to accomplish "thiol-ene cure" of polymers (i.e. radiation induced addition of thiol functions to carbon-carbon unsaturation). Applicants, on the other hand, teach a radiation curable resin composition, containing essentially no volatile organic components, comprising at least one vinyl dioxolane end-capped oligomer and at least one photoinitiator to initiate radiation cure of the oligomer. Applicants' compositions are free of thiols. Further, Applicants' curing mechanism occurs by polymerization of the vinyl group, while the dioxolane ring remains intact or by polymerization of the vinyl group, while vinyl dioxolane ring opens.

Thus, it is clear from the forgoing that claims 1 and 54 are patentable over the Schmiddle references in view of Kovar '269. Claims 2-11, 19-21, 23-24, 26-35, 38, 52-56 and 64-65 depend from claims 1 and 54 and, likewise, are patentable over the Schmiddle references in view of Kovar '269.

Reconsideration and withdrawal of the rejection is respectfully requested.

2. Allowable Claims

Claims 12-18, 22, 25, 36-37, 39-51, 57-63 and 66-74 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Inasmuch as Applicants believe that the base claims are allowable, claims 12-18, 22, 25, 36-37, 39-51, 57-63 and 66-74 have not been rewritten as suggested. Applicants, however, reserve the right to later amend the subject application so as to present any one or more of these claims in independent form.

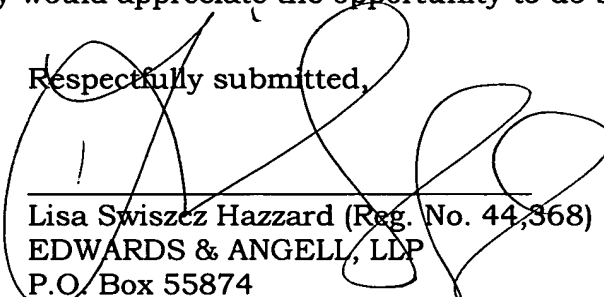
CONCLUSION

Reconsideration and allowance of claims 1-13, 15-42 and 44-72 is respectfully requested in view of the foregoing discussion. Further, withdrawal of the restriction requirement is respectfully requested in view of the foregoing discussion. This case is believed to be in condition for immediate allowance. Applicant respectfully requests early consideration and allowance of the subject application.

Applicants conditionally petition for an extension of time to provide for the possibility that such a petition has been inadvertently overlooked and is required. As provided below charge Deposit Account No. **04-1105** for any required fee.

Should the Examiner wish to discuss any of the amendments and/or remarks made herein, the undersigned attorney would appreciate the opportunity to do so.

Respectfully submitted,



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